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IN THE

Supreme Court of the United States

STATE OF WISCONSIN, STATE OF MINNESOTA, STATE OF OHIO, and STATE OF PENNSYLVANIA, *Complainants,* vs. STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, *Defendants.* STATE OF MISSOURI, STATE OF KENTUCKY, STATE OF TENNESSEE, STATE OF LOUISIANA, STATE OF MISSISSIPPI, and STATE OF ARKANSAS, *Intervening Defendants.*	No. 6, Original.
STATE OF MICHIGAN, *Complainant,* vs. STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, et al., *Defendants.*	No. 10, Original.
STATE OF NEW YORK *Complainant,* vs. STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, et al., *Defendants.*	No. 11, Original.

SEMI-ANNUAL REPORT OF THE SANITARY DISTRICT OF CHICAGO OF JANUARY 1, 1931, MADE PURSUANT TO DECREE OF APRIL 21, 1930.

GUNTHORP-WARREN PRINTING COMPANY, CHICAGO.

IN THE

Supreme Court of the United States

NOS. 7, 11 AND 12, ORIGINAL.

OCTOBER TERM, 1929.

STATE OF WISCONSIN, STATE OF MINNESOTA, STATE OF OHIO, and STATE OF PENNSYLVANIA, *Complainants,* *vs.* STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, *Defendants.* STATE OF MISSOURI, STATE OF KENTUCKY, STATE OF TENNESSEE, STATE OF LOUISIANA, STATE OF MISSISSIPPI, and STATE OF ARKANSAS, *Intervening Defendants.*	No. 7, Original.
STATE OF MICHIGAN, *Complainant,* *vs.* STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, et al., *Defendants.*	No. 11, Original.
STATE OF NEW YORK, *Complainant,* *vs.* STATE OF ILLINOIS and THE SANITARY DISTRICT OF CHICAGO, et al., *Defendants.*	No. 12, Original.

SEMI-ANNUAL REPORT OF THE SANITARY DISTRICT OF CHICAGO OF JANUARY 1, 1931, MADE PURSUANT TO DECREE OF APRIL 21, 1930.

Pursuant to provisions of Paragraph numbered 5 of the Decree in the above entitled causes, entered on April 21, 1930, the Defendant, The Sanitary District of Chicago, hereby makes its semi-annual report of January 1, 1931, as follows:

CONSTRUCTION PROGRAM.

In the semi-annual report of July 1, 1930, the status of the sewage treatment construction program involved in this case was stated to be on June 1, 1930, as follows:

TABLE 1.

COMPLETED WORK AS OF JUNE 1, 1930.

Des Plaines River Project	$ 4,005,843.06	
Calumet Project	19,375,028.09	
North Side Project	35,889,832.75	
West Side Project	30,278,128.22	
Southwest Side Project	192,753.73	
Miscellaneous Plants and Sewers	521,060.20	
Chicago River Controlling Works	53,415.74	$ 90,316,061.79

TABLE 2.

FUTURE WORK AFTER JUNE 1, 1930.

Des Plaines River Project	$ 4,214,476.47	
Calumet Project	20,274,893.93	
North Side Project	5,964,678.68	
West Side Project	64,234,806.57	
Southwest Side Project	70,624,246.27	
Miscellaneous Plants and Sewers	9,981,537.86	
Chicago River Controlling Works	3,946,584.26	$179,241,224.04

During the interim of six months between the date of the last report and the present report, work was prosecuted diligently on the Calumet, the North Side and the West Side Projects. Considerable preliminary work was done on the Southwest Side Project and some small items were accomplished on the Des Plaines River Project and on Miscellaneous Plants and Sewers.

Des Plaines River Project—The Des Plaines River Sewage Treatment Plant has been operating since August, 1922 and for some years past has been treating sewage to 100 per cent of its capacity. Instead of making additions to this plant to take care of the increasing population, it has been combined with the larger West Side Sewage Treatment Project in the interest of

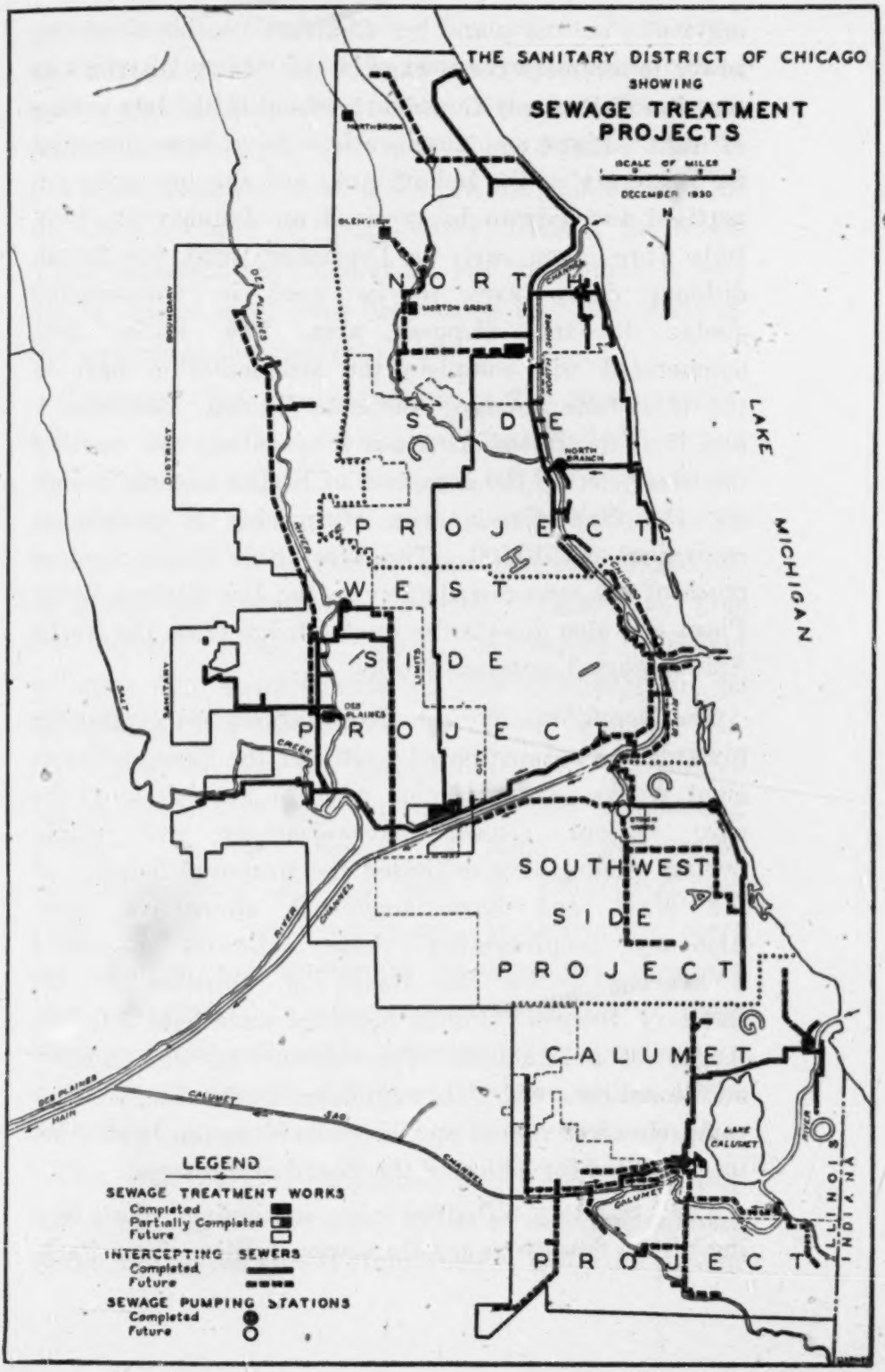
economy in operation. Much of the sewage tributary to the Des Plaines River Plant has been diverted to the sewers leading to the West Side Plant since Batteries A and B of the Imhoff tanks have been placed in operation at said West Side Plant. The Des Plaines River Plant is still being operated for the treatment of a portion of the sewage of approximately 25,000 people and for conducting experiments and tests on a working scale. During the past six months a section of the intercepting sewer, known as the Berkeley-Hillside sewer, has been constructed and placed in operation in connection with this project.

Calumet Project—As stated in the last report, a suit was filed to acquire sufficient land for the site for the additions to the Calumet Sewage Treatment Works. This case was set for trial in August, 1930, but the Defendant property owners objected to the Judge selected to hear the case. The case is now set for trial in the early part of January, 1931. Borings and test pits have been made on the site to determine soil conditions. Considerable progress has been made on the design of the sedimentation tanks, the pump and blower house, the preliminary settling tanks, grit chamber, screens, sludge disposal, etc. Specifications for the pumps, blowers and electrical equipment will be ready within a month and plans and specifications for the other work mentioned herein will be finished progressively during 1931. The letting of contracts on this project is dependent upon financing, authority for which is now being arranged.

North Side Project--At the time of the last report, the North Side Sewage Treatment Works were in operation, treating all the sewage from the North Side area except that from the area served by the North Branch Pumping Station. This Pumping Station was completed

and placed in operation before the end of August, 1930. At that time the North Side Works were operating under full load. The preliminary figures of the 1930 census indicate that due to the growth and shift of population a much greater population is tributary to this plant at the present time than had been anticipated. The estimated population equivalent for the North Side Treatment Works was 830,000 for 1930. The actual population figure is approximately 980,000. This increase of 150,000 in the population above the estimate will require immediate construction of certain additions to the plant which otherwise would have been postponed for several years. Additional preliminary settling tanks and final settling tanks are now being designed.

West Side Project—Construction work was continued on the West Side Sewage Treatment Works, the first unit of which was placed in operation on June 2, 1930. Battery B was completed and placed in operation in the early part of July, 1930. Twenty-seven acres of sludge drying beds were completed and a part used. The sludge bed cleaning machine was completed and tested. The contract for Railway Plant Structures was completed and the contract for the Sludge Disposal Railroad was let and is now about 50 per cent completed. Two minor contracts for Roadways and for Grading for Additional Sludge Beds were let and completed. Contract Section 2 of the West Side Intercepting Sewer was completed. A contract for Section 3 (about two miles) of the West Side Intercepting Sewer was let late in November, 1930. The next Section of this sewer (Contract Section 4) will be advertised for bids early in 1931. Progress is be-


THE SANITARY DISTRICT OF CHICAGO
SHOWING
SEWAGE TREATMENT PROJECTS
SCALE OF MILES
DECEMBER 1930
N
NORTH SIDE PROJECT
WEST SIDE PROJECT
SOUTHWEST SIDE PROJECT
CALUMET PROJECT
LAKE MICHIGAN
DES PLAINES RIVER
CHICAGO RIVER
NORTH BRANCH
SALT CREEK
CALUMET RIVER
SAG CHANNEL
LAKE CALUMET
ILLINOIS
INDIANA
LEGEND
SEWAGE TREATMENT WORKS
Completed
Partially Completed
Future
INTERCEPTING SEWERS
Completed
Future
SEWAGE PUMPING STATIONS
Completed
Future

ing made on the plans for Contract Section 6 of this sewer to intercept the sewage of the "Loop District" so that it will be ready for advertisement in the late spring of 1931. Plans and specifications have been prepared for Battery C of the Imhoff tanks and are now being advertised for bids to be received on January 22, 1931. Bids were taken early in December, 1930, for 25 additional dump cars to be used in transporting sludge to the disposal area. The works here enumerated will complete the sedimentation part of the West Side Sewage Treatment Works. Batteries A and B of the Imhoff tanks, now operating, are treating the sewage of all the area west of Kedzie avenue, including the Salt Creek area comprising a population equivalent of 510,000. The West Side Plant receives much of the sewage tributary to the Des Plaines River Plant and also digests the waste sludge from the North Side Sewage Treatment Works.

Southwest Side Project—Negotiations are continuing towards the acquisition of a site for the Sewage Treatment Works. In connection with the acquisition of the site, various citizens, organizations and neighboring owners have criticized the proposed location of the plant and have suggested alternative sites. Attorneys representing these interests requested a hearing before the Board of Trustees of the Sanitary District. Public hearings were held July 31, August 21 and 22, 1930. The objectors insisted on filing additional data which they produced in October, 1930. A comprehensive report on the whole situation is now being compiled for action of the Board of Trustees.

The Sanitary District is continuing the testing of the flow from certain sewers leading from Pack-

ingtown and the Stock Yards. The suit in the Federal Court to determine the right of the Sanitary District to have access to the packing plants is set for preliminary hearing on January 8, 1931, in the United States District Court, on a motion to dismiss. In the similar suits in the Circuit Court of Cook County, Illinois, the Stock Yards interests have demurred but the demurrer will not be argued until some disposition has been made of the motions in the Federal Court.

Financial—The financial status of The Sanitary District of Chicago has not changed materially since the time of the last report. Of the $27,000,000 of bonds authorized by the Illinois General Assembly in 1929 to be issued without referendum, approximately $9,455,000 of bonds yet remain to be sold. This sum, plus the current funds on hand, is barely sufficient to meet the requirements of the contracts to be let within the next two or three months. Efforts failed to have the Special Session of the Illinois Legislature in 1930 consider the emergency of granting authority to the District to issue bonds without referendum, at the rate of $20,000,000 per year, for the next two years, in order to carry out the sewage treatment construction program. It is now planned to submit about $40,000,000 of these bonds to public referendum as required by statute at an election to be held in February, 1931, or appeal to the State Legislature which will then be in regular session.

The total work accomplished by The Sanitary District of Chicago in the construction of sewage treatment works during the period from June 1, 1930 (the date of

the summaries for the last report) and December 1, 1930 (the date of the summaries for this report) as measured by construction expenditures was, as follows:

TABLE 3.

Des Plaines River Project	$ 120,487.96	
Calumet Project	[illegible],763.64	
North Side Project	788,708.32	
West Side Project	3,474,943.60	
Southwest Side Project	41,126.26	
Miscellaneous Plants and Sewers	73,133.27	$4,836,163.05

By adding the various items indicated in Table 3 to corresponding items in Table 1 and subtracting them from corresponding items in Table 2, the status of the sewage treatment construction program on December 1, 1930, is as follows:

TABLE 4.

COMPLETED WORK AS OF DECEMBER 1, 1930.

Des Plaines River Project	$ 4,126,331.02	
Calumet Project	19,712,791.73	
North Side Project	36,678,541.07	
West Side Project	33,753,071.82	
Southwest Side Project	233,879.99	
Miscellaneous Plants and Sewers	594,193.47	
Chicago River Controlling Works	53,415.74	$ 95,152,224.84

TABLE 5.

FUTURE WORK AFTER DECEMBER 1, 1930.

Des Plaines River Project	$ 4,093,988.51	
Calumet Project	19,937,130.29	
North Side Project	5,175,970.36	
West Side Project	60,759,862.97	
Southwest Side Project	70,583,120.01	
Miscellaneous Plants and Sewers	9,908,404.59	
Chicago River Controlling Works	3,946,584.26	$174,405,060.99

SEWAGE TREATMENT.

The population of The Sanitary District of Chicago, for the year 1930, is about 3,880,000, according to preliminary figures available from the 1930 census. This exceeds by 170,000 the population previously estimated for 1930. The industrial wastes in the Sanitary District are estimated as equivalent to the sewage of 1,722,000 additional persons. Hence, the total population and industrial wastes equivalent amount to 5,602,000. This figure includes the Corn Products wastes, equivalent to the sewage of 422,000 persons, which wastes have been greatly reduced as a result of certain experimental work initiated by the Sanitary District.

The increase in population of about 170,000 over the previous estimates based on 1920 census figures, has apparently all taken place in the outskirts of Chicago and in the outlying communities. The central portion of Chicago lost in population in the last decade due to the expansion of the business district. The growth in population has been greater than was estimated and likewise the outward shift has been greater. As a result, the North Side Sewage Treatment Plant, which serves an area largely residential, is now treating about 20 per cent more sewage than had been estimated for 1930. The West Side Plant will also be required to handle more sewage than had been originally planned for the first few years.

Official figures of the 1930 census and its detail are not yet available. The table showing the amount of sewage treatment in operation at the present time is based on

such figures for the 1930 census as have been published in the local press. The table showing the amount of sewage treatment in operation at the time of the last report (June 24, 1930) was based on estimates made from the 1920 census figures.

The 1930 total population and industrial wastes equivalent as above indicated are estimated as 5,602,000. Up to date the Sanitary District has assumed that sewage treatment could produce an annual average of 85 per cent purification. Hence so-called complete treatment for the total 1930 population and industrial wastes equivalent would equal the 100 per cent treatment of the sewage of 4,762,000 which is 85 per cent of 5,602,000.

The expenditures for sewage treatment have been indicated in Tables 1, 3 and 4. The amounts of actual sewage treatment in operation on June 24, 1930 (as of the time of the last report to the Supreme Court) and at the present time, are shown in Tables 6 and 7, following:

TABLE 6.

ACTUAL SEWAGE TREATMENT IN OPERATION AS OF JUNE 24, 1930.

Treatment Works	Population Equivalent	Percentage Treatment	Treatment 100 Per Cent Basis
Des Plaines	55,000	85	47,000
Calumet:			
(Complete treatment)	15,000	85	13,000
(Sedimentation)	167,000	33⅓	56,000
North Side	681,000	85	580 000
West Side (Sedimentation)	248,000	33⅓	83,000
Miscellaneous (Morton Grove, Glenview, Northbrook)	5,000	85	4,000
Corn Products (Reduction)	432,000		361,000
Total	1,603,000		1,144,000

TABLE 7.

ACTUAL SEWAGE TREATMENT IN OPERATION AS OF DECEMBER 25, 1930.

Treatment Works	Population Equivalent	Percentage Treatment	Treatment 100 Per Cent Basis
Des Plaines	25,000	85	21,000
Calumet:			
(Complete treatment)	15,000	85	13,000
(Sedimentation)	195,000	33⅓	65,000
North Side	980,000	85	833,000
West Side (Sedimentation)	510,000	33⅓	170,000
Miscellaneous (Morton Grove, Glenview, Northbrook)	6,000	85	5,000
Corn Products (Reduction)	422,000		366,000
Total	2,153,000		1,473,000

The extent of the operation of sewage treatment plants at the present time is equal to the 100 per cent treatment of the sewage of 1,473,000 persons out of 4,762,000, which would be the present possible 100 per cent treatment if the sewage of the total population and industrial wastes equivalent of 5,602,000 was being treated. This indicates the treatment of 32 per cent of the total sewage within the Sanitary District. On April 21, 1930 (the date of the Decree of the Supreme Court) the treatment was 16.7 per cent of the total and on June 24, 1930 (as of the time of the last report to the Supreme Court) the treatment was 24.8 per cent of the total.

The operation of the sewage treatment facilities to the extent of relieving the Drainage Canal of 32 per cent, or almost one-third of its load, has not been in effect for sufficient time to observe the improvement in

the quality of the water in the Drainage Canal or in the rivers below. The severe and unprecedented drought conditions which have prevailed throughout the Illinois River valley during the past summer and fall have tended to offset whatever improvement has been made by the reduction in the amount of sewage which has been discharged from the Drainage Canal. Under normal conditions next season, the effect will be observed and studied.

DIVERSION OF WATER.

Diversion of water from Lake Michigan by The Sanitary District of Chicago for the five years, 1925-1929, was made in accordance with a Permit from the Secretary of War, dated March 3, 1925, which authorized a net diversion from the Lake of not to exceed 8,500 cubic feet per second, annual average. The annual average diversion as made under this Permit is indicated in the table following:

Year	Total Flow From Main Channel at Lockport C.F.S.	Inflow From Willow Springs Spillway C.F.S.	Domestic Pumpage Chicago Metropolitan Area C.F.S.	Net Diversion From Lake Michigan C.F.S.
1925.....	8278	0	1338	6940
1926.....	8283	15	1395	6873
1927.....	8450	5	1460	6985
1928.....	10010	45	1565	8400
1929.....	9450	70	1680	7700
Average 1925-1929.....	8894	27	1488	7379

Diversion of water from Lake Michigan by The Sanitary District of Chicago for the first six months of 1930 was made in accordance with a Permit from the Secretary of War, dated December 31, 1929, which authorized the diversion of water in such an amount that the total flow in the Drainage Canal at Lockport would not exceed an annual average of 8,500 cubic feet per second. The average monthly diversion, as made under this Permit

from January 1 to June 30, 1930, is indicated in the table following:

Month 1930	Total Flow From Main Channel at Lockport C.F.S.	Inflow From Willow Springs Spillway C.F.S.	Domestic Pumpage Chicago Metropolitan Area C.F.S.	Net Diversion From Lake Michigan C.F.S.
January	7745	0	1700	6045
February	7910	0	1685	6225
March	8885	0	1640	7245
April	9745	2	1650	8093
May	8200	0	1650	6550
June	8500	0	1745	6755
Average	8497	0	1678	6819

Diversion of water from Lake Michigan by The Sanitary District of Chicago since July 1, 1930 has been made in accordance with a Permit from the Secretary of War, dated June 26, 1930, which authorized the diversion of water as specified in the Decree of the Supreme Court, handed down April 21, 1930. This limits the net diversion to an annual average of not more than 6,500 cubic feet per second up to December 31, 1935. The average monthly diversion as made under this Permit from July 1 to date, is indicated in the table following:

Month 1930	Total Flow From Main Channel at Lockport C.F.S.	Inflow From Willow Springs Spillway C.F.S.	Domestic Pumpage Chicago Metropolitan Area C.F.S.	Net Diversion From Lake Michigan C.F.S.
July	8195	0	1825	6370
August	10370	0	1815	8555
September	8915	0	1765	7150
October	7420	0	1680	5740
November	7160	0	1615	5545
December 1 to 25	6845	0	1615	5230
Average	8196	0	1723	6473

The diversion was very materially increased from August 14 to September 18, 1930, in conformity with the known wishes of the War Department, to assist in alleviating abnormally low water conditions in the Illinois and Mississippi Rivers caused by the unprecedented drought. After September 18th it was found possible to temporarily reduce the diversion to a figure lower than 6,500 cubic feet per second so that the annual average did not exceed the permitted 6,500 cubic feet per second.

Respectfully submitted,

THE SANITARY DISTRICT OF CHICAGO,

By THOMAS J. BOWLER,
Its President.

EDWARD J. KELLY,
Its Chief Engineer.

WILLIAM ROTHMANN,
Its Attorney.

Attest:

HARRY E. HOFF,
Clerk.